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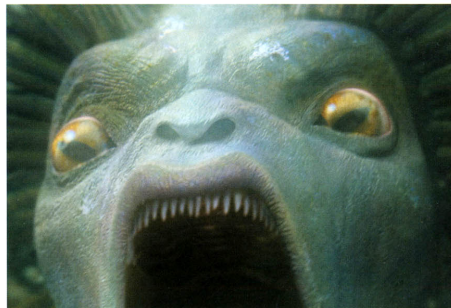
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Overview

Bill Taylor & Syd Dutton on Casanova

Article by Estelle Shay



The crumbling opulence of 18th-century Venice serves as an atmospheric backdrop for the comic fabrication of love and lust rooted in history's most celebrated lothario. To achieve visual authenticity, director Lasse Hallström shot his film entirely within the historic city, upon visual effects supervisors Bill Taylor and Syd Dutton of Illusion Arts to assist in the re-creation of old Venice. Despite the city's well-timed architecture, that task would ultimately require the re-creation of entire vistas and the full gamut of digital fixes.

For reference, Taylor and Dutton studied the paintings of 18th-century artist Canaletto, whose depictions of Venice captured the city from every angle. "Aside from such obvious anachronisms as modern hotels, outdoor cafes and waterfront promenades, not to mention power lines, television antennas and satellite dishes — Taylor and Dutton identified a number of more subtle contrasts between the old and new city. "The Venice of 200 years ago was past its glory," observed Syd Dutton. "Many of the buildings were in disrepair, and there was crumbling masonry and plaster knocked off, revealing the structure underneath. Buildings, for the most part, were a kind of ochre — as opposed to the colors you see today, and windows were made of glass with only an upper and lower pane. 'Structural features evident from the period, like the distinctive chimneys and bell towers, were the only things that remain. "The chimneys were these elaborate things," explained Bill Taylor. "In every room had its own fireplace —

For Casanova, his comic look at the life and loves of the infamous 18th-century rake, director Lasse Hallström took his production team to the story's actual setting, the historic city of Venice. Though much of modern-day Venice looks substantially as it did in Casanova's day, architecturally, numerous anachronistic elements had to be addressed and eliminated, either through set dressing or through the employment of visual effects, supervised by Bill Taylor and Syd Dutton of Illusion Arts.



From a point overlooking the harbor and the Grand Canal, the camera cranes into the Piazza San

For *Casanova*, his comic look at the life and loves of the infamous 18th-century rake, director Lasse Hallström took his production team to the story's actual setting, the historic city of Venice. Though much of modern-day Venice looks substantially as it did in *Casanova*'s day, architecturally, numerous anachronistic elements had to be addressed and eliminated, either through digital restoration or



Having run the woman (Ledger) and Francesca E share little and a corn as they face execution for rousing fin San Marco, filmed in the the product days in the turning the from a relat in-camera si visual effect

To complete gallows set - in the actual to the city of Venice, and lot of a large. The product with giant g background thousands of Piazza take photos, two and painted match, were behind the Arts, which a greenscreener



Having run from the woman (Francesca Leandri) and the man (Joaquin Phoenix), the woman (Francesca Leandri) and the man (Joaquin Phoenix) share little time and a common goal as they face execution for rousing the people of San Marco, filmed in the product of the production.

expansive beyond the gallows and the gathering of on-set extras. The use of Massive software, or something comparable, to generate huge throngs of people had already been rejected as too expensive for one or two shots, so Dutton and Taylor settled on a 2D solution using greenscreen people, shot with a locked-off camera, placed on cards, and tracked into the plates in 3D. "We had about sixty extras in costume," related Taylor, "and on the next to last day of our shoot, outside the stage in Marghera, we set up platforms with greenscreens behind them and shot dozens of combinations of those sixty extras in groups of eight to ten. We shot them every way we could think of — with hats, without hats, cheering, watching with interest, talking to each other. Happily, the scene was overcast, so we could flop them and change their wardrobe colors. In the end, there was only the one wide shot where we couldn't use traditional split-screen-type crowd multiplication because of the boom move. So even though it was budget-driven, the 2D-people-on-cards approach turned out to be a good decision."



Overview

Joe Bauer on *Zathura*

Article by Jody Duncan



*J*umanji, the illustrated children Van Allsburg, ended with a little wing, running home with the mystery of the same name tucked under his a years later, with the publication of Z burg finally revealed what transpire returned home.

When Columbia Pictures decided *thura* into a movie, director Jon Favreau had the same challenge Joe Johnston had in 1995 and Robert Zemeckis had with *Polar Express*: fleshing out Van Allsburg's material to a feature-length film. "It was about 30 pages long," said production supervisor Joe Bauer, who had first worked with Favreau on *Elf*. "The screenplay had fleshed out the story a lot and had a lot of gags in it; but even that had to be refined with David subsequently, changing the story points."

Even with the addition of character elements, the storyline remained a year-old Danny (Jonah Bobo) and his brother Walter (Josh Hutcherson), who were bored in the basement, and suddenly the house has been launched into outer space. The play continues, they must defend the house from meteor showers, attacks by a robotic alien, and potential oblivion into a black hole.

Favreau, a fan of old-time effects, tended to shoot as much of the movie as possible, relying on digital effects only when necessary. He has a classic sensibility. It's not so much that he doesn't like CG — he doesn't like being CG. He doesn't like the aesthetic of CG.





and supplied those elements to Imageworks, which shot cutaways of lead balls dropping pieces, which Jon Belyeu executed. The balls look as if they were coming in from the side rather than dropping straight down, cutaway set pieces.

Though Belyeu had experimented with dropping lead balls and timing them with floor explosions, safety concerns about cast and crew safety had led them to go with non-flaming effects shot as set pieces. Imageworks replicated in its cutaway set pieces. Favreau returned to the idea of a meteor shower when the first teaser for the film was shot. In that teaser, the studio marketing department added glows to the meteors — and how that looked. So we went back to ask them to add flames to the CGI meteors. Imageworks also added simulated smoke to the flaming space debris.

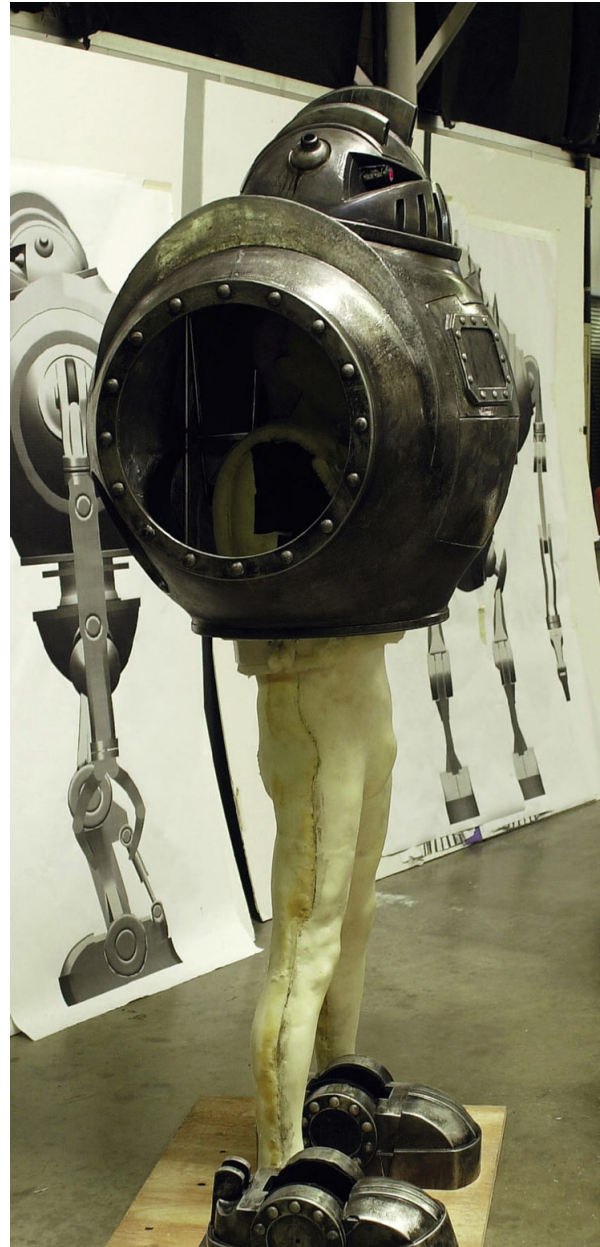
When the meteor shower stops, Doc is at the front door, discovering — along with

Surrounded by greenscreen to accommodate the compositing of Digital Dimension's starry background, the miniature was shot — as the live-action sets had been — in sequence, allowing for the house to sustain additional damage as the story progressed. "We'd shoot six or seven lighting passes and matte passes of the house before the destruction. Then the model crew would do the destruction, tearing away pieces of the model, and we'd reshoot all of those passes for the aftermath. Imageworks or Digital Dimension animated the in-between destruction on camera. We also shot a bunch of full-scale practical explosions with debris, which were comped on top of the miniature with the CG."

To enable Favreau to cut seamlessly from house interiors to the exterior miniature, modelmakers carefully matched the full-size house damage and set dressing shot to shot. "Jon was a real stickler for accuracy, right down to the position of each piece of furniture, which we could see even in these exterior shots, because there were a lot of big windows in the house. The inside of the miniature was dressed so that when we cut from the full-scale set interior to the outside view, all the chairs and lamps and everything would be exactly in the right place. It was meticulous work."

Inside the house, a giant robot menaces the boys, after first appearing as a 10-inch-tall toy. Stan Winston Studio created the toy robot as a rod puppet, puppeteered from beneath the floor of the set. "The puppet was on a little track in the floor. In post, we filled in those slots digitally, just painting them in." Winston Studio also built the full-size robot, designing a character that would fit the film's overall retro style. "I think that was difficult, at first, for Shane and his guys. These were the people who had created the Terminator; and so their tendency was to amp things up. But Jon kept simplifying it. If anything on the robot looked beyond what could have been produced in the '50s, he yanked it out. It wound up being made up of a lot of cogs and wheels, with steam and oil coming out everywhere."

Winston Studio built several versions of the character, including a non-articulated metal prop used in shots of the robot smashing through doors and walls. "There was another full-body puppet version, which we didn't end up using very much, because it didn't look heavy enough in the photography. The one we used predominantly was the performance robot, which



Stan Winston Pictures Imagine to create a h from a dimi mechanical opt for an a commission under Shane — to design c movie robot robot suit th a performer The robot st at the Winst

The robot's too spindly t — were comj grafted onto by digital ar Imageworks crews also c reptilian Zo Winston Stu Zoragon suits the creature out from the performer. I background performer's was hooded extraction — control pass set. A Winst illustrates th



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Overview

Stephen Rosenbaum on *The Shaggy Dog*

Article by Estelle Shay



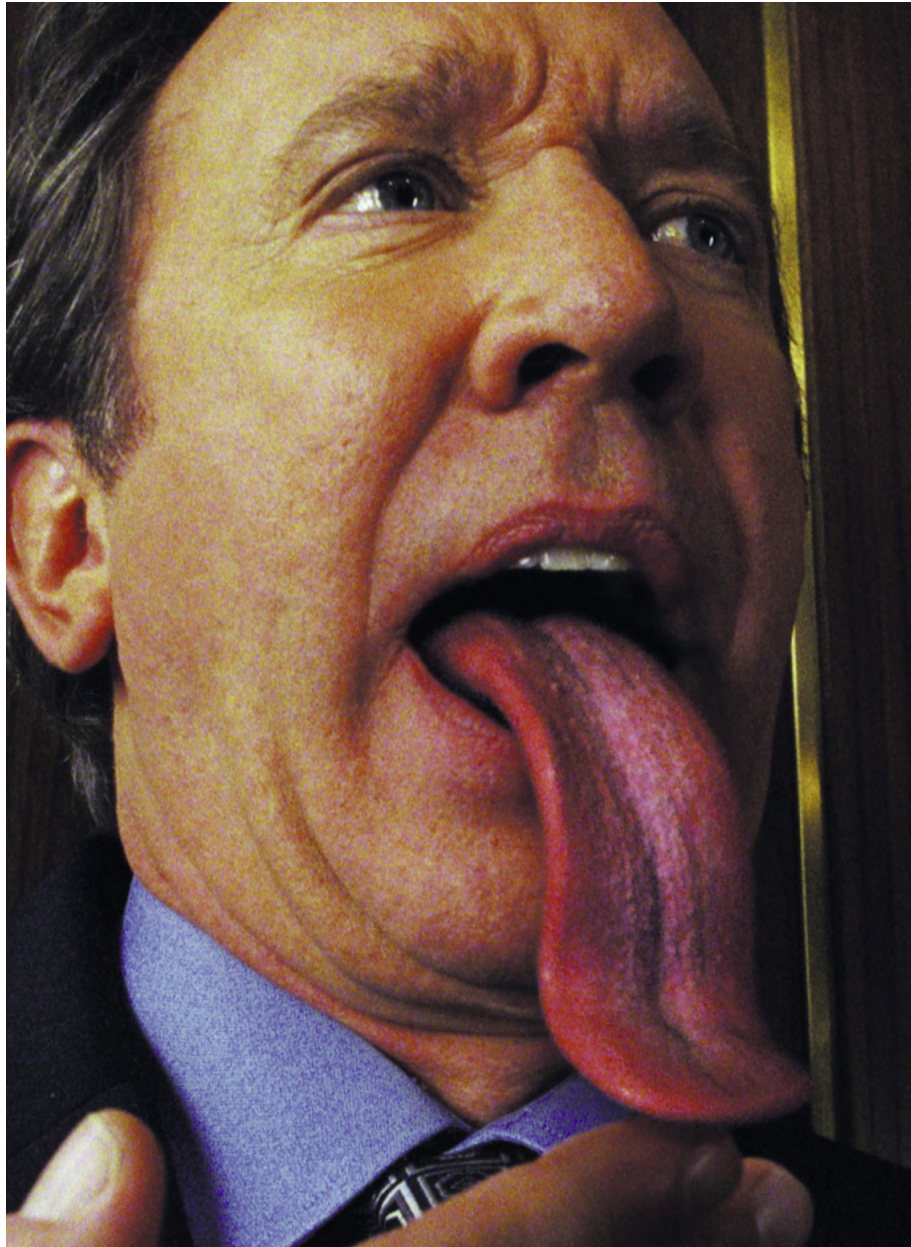
In 1959, at the close of a remarkable moment of Disneyland, the launch of *The Mickey Mouse Club* and the release of the beloved animated film *The Tramp and Cinderella*, Walt Disney made its first foray into live-action with the small, wacky, low-budget feature *The Shaggy Dog*. The film — about a boy who does a magic trick that turns him into a sheepdog — became a hit, generating more than \$12 million in box office and paving the way for subsequent Disney films to enter the highly profitable arena of live-action comedy.

Now, *The Shaggy Dog* joins other classic Disney vaults to be dusted off and given a modern makeover. Directed by Brian Robbins, the film capitalizes on the comedic talents of its star, Tim Allen, as deputy district attorney Dave Douglas. His workaholic ways leave little time for his family, particularly after he takes on a case involving a dog where, unbeknownst to him, top-secret unethical animal experiments are underway. When he discovers a 'fountain of youth' serum. When he is infected by an escapee from a Tibetan lab that his animal-rights activist wife rescues and brings home, he finds his distinctly doglike behaviors to the point of mutating into a carbon copy of the dog. The film that wreaks havoc with his career brings him closer to his family.

Recruited by Disney to oversee effects, visual effects supervisor Stephen Rosenbaum, who was joined by visual effects producer Aidoo in preproduction. With the sci-



In *The Shaggy Dog*, Tim Allen as Dave Douglas, who plays a man who turns into a dog — when he is infected by a virus in a lab where cloning experiments are underway. The movie's co-director, Brian Robbins, says that the effects involved a mix of 3D and 2D, with Tim Allen and Stuart Toppig respectively. The film, which was a commercial success, was a special part of the Disney vault.



by wires from each corner. "The rig uncomfortable, but the stunt guys r Tim into it, and he would lie down o and basically do the motions of runi It was great, because they could fly i on a dolly or on the back of a cart on did not have to shoot Tim against g shots where Allen's face was not reco double filled in for the actor, requirir digital head replacement, a task per with wire and rig removal — by visu. visor Tom Smith and his crew at CIS. added to the comical aspect by inco from Dave's doggie perspective, dc ground. "There were a number of sl is running through the neighborhoo restaurant where we used a Radcan camera system. It's a little four-perf c along on a robotic car about ten in ground, and it gave us a nice POV."

Indications that something unu ing to Dave are conveyed via m neys through his body for a clo: internal havoc wreaked by the virus two such shots in the film, but they'r is thirty or forty seconds and the othe are bookended by live-action plates,' directly following Dave's initial enc Tibetan dog, who promptly chomps c The camera pushes in on the wound, and into Dave's bloodstream to reve cells being overtaken by tail-wagging cells that swarm in from the dog sal the wound, causing the normal cell: more Shaggy cells. The camera then the bloodstream, up Dave's throat : mouth, just as he emits a yelp of pai occurs at the moment Dave first mor "In that shot, the camera pushes in eye, past the retina and into the bloo see the same thing happening — SI transforming normal cells into mutai camera flies out through the eye agai it's actually Shaggy's eye."

Rosenbaum relied on previsualiza shots, then handed the approved co pett for execution. "This being a cor to keep it light. We didn't want to m



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e Shaggy's paws turning

full Shaggy mode, the
the talents of a bearded
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t for the show. Ironically,
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peteered by Paul Mejias
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Two barking rabbits – digital creations animated by Tippett Studio – hang out the window of Dave's car as the liberated lab animals cram into the vehicle with Dave for a wild ride down the freeway. Interior shots of Dave wrangling the carload of critters were captured on a greenscreen stage with real trained animals that included a monkey, a chimpanzee, a gaggle of rats and a rabbit. Tippett artists composited freeway backgrounds into the car windows, and inserted the snake-dog and frog-dog into the mix, intercutting shots of the real rabbit with its digital counterparts.



At the film's reconciled family and takes them on vacation to the beach. In one shot, Shaggy is surfing on a wave. The surfboard and the waves were created using stock footage. The curl of the wave and the surfer are all digital. Tippett rewrote the renderer to wind and water long hair.



Kevin Blank

VISUAL EFFECTS SUPERVISOR

With degree in Film Studies from University of California, Berkeley, joined *Hercules* and *Xena* series as visual effects coordinator, 1995-1998. After several film and TV assignments, joined Bad Robot Productions as visual effects supervisor for *Alias* and *Lost*. Emmy and Visual Effects Society Award: *Lost*.



Tom Burman

MAKEUP EFFECTS SUPERVISOR

Started in makeup business in 1966. Founded The Burman Studio, with Bari Dreilband-Burman, in 1973, providing makeup effects for hundreds of films, TV shows and commercials. Currently on *Nip/Tuck* and *Grey's Anatomy*. Emmys: *The Tracey Ullman Show*, *Young Indiana Jones*, *War and Remembrance*, *Primal Man*.



David Carriker

VISUAL EFFECTS SUPERVISOR

Worked as production supervisor and editor on film and TV projects from early 1980s. With ABC Network as post producer, 1994-1996. In 1996, joined Modern VideoFilm, where he has served as visual effects supervisor on *Malcolm in the Middle*, *Desperate Housewives*, *The O.C.*, *How I Met Your Mother*, *South Beach*.



Kevin Kutchaver

VISUAL EFFECTS SUPERVISOR

Began career at Visual Concept Engineering, 1981-1982. Freelanced on film and TV projects, including *Babylon 5*, through 1985. Co-founded Flat Earth Productions to produce visual effects for *Hercules* and *Xena*, 1995-2001. With Kathy Zielinski, formed HimAnI Productions, in 2001. Currently on *Lost* and *Alias*. Emmy: *Lost*.



Kymber Lim

VISUAL EFFECTS PRODUCER

With degree in Radio/TV/Film from California State University, Northridge, produced videos, commercials and digital media. Began effects producing at L-Squared Entertainment, 1997-1999, then freelanced before joining Entity FX in 2002, where she has produced three seasons of effects for *Smallville* and several features.

Mark Miller

VISUAL EFFECTS EXECUTIVE

Worked at CBS Network and CBS Systems as engineer and technician, 1972-1980. Served as vice president of Unitel Video Hollywood executive vice president and member of Digital Magic, 1998-2000. Co-president of Eden FX since

Matthew Mungle

MAKEUP EFFECTS SUPERVISOR

Has worked on makeup and prosthetics for more than 100 film, TV and stage productions since late 1970s. Academy Award nomination: *Schindler's List*. Nominations: *Schindler's List*, *Dracula*. Emmys: *Citizen X*, *Grey's Anatomy*. Designed prosthetics for Broadway production of *Wicked*.

Sam Nicholson

VISUAL EFFECTS EXECUTIVE

With degree in design from University of California, has worked in effects since 1979. Now president of Visual Effects, which he founded in 1985. Worked in Los Angeles, London and Vancouver. Vides effects for *The Dead Zone*, *Chief, E.R.*, *Las Vegas*, *Nip/Tuck*.

Andrew Orloff

VISUAL EFFECTS SUPERVISOR

With a background in effects, and commercials, headed 3D Visual Effects, several major visual effects companies, joining Zoic Studios in 2002. Founder of commercial division and executive producer on *House*, *NYPD 2069*, *Global Crime Scene Investigation*, *Cyberchase*.



Bruce Woloshyn

DIGITAL EFFECTS SUPERVISOR

Started in Canadian TV as editor, progressing into post production and visual effects. Recruited by R2 to help establish visual effects television credits on *Highlander*, *Dark Angel*, *Millennium*, *Missi* on *Stargate SG-1* and *Stargate*.



Faster computers and affordable software have significantly upped the quality and quantity of visual effects in television. The most ubiquitous effects involve digital environments, which have enabled producers to set shows in exotic locations previously off-limits due to tight production schedules and budgets. Kevin Blank, visual effects supervisor for the TV spy drama *Alias*, has placed lead character Sydney Bristow (Jennifer Garner) in settings all around the world, without the production's leaving the studio. In a Season One show, Sydney parachutes over Rio de Janeiro. Both the parachute and Sydney were CG models, nestled into an environment assembled from location photographs by Eric Chauvin of Blackpool Studios.



Entity FX has effects vend show that cl teenage yec season, turn shots in a tv given episod scene of you Welling) rac caught in a surrounded of the boy si digital matt smoke elem Footage of the roadway the show's c streaking ef



comes to the budget. A lot of times, isn't there.

MARK MILLER: I'd say most have an adequate effects budget. T of difference in per-shot budgets be films and television shows, in fact.

BRUCE WOLOSHYN: Ther in budgets, though. You can do shot \$2,000 range, and you can do shot \$60,000 range. That's the nature of working in, particularly. In some cas ing is enhancing something that wa graphed. In others, we're building s scratch.

KEVIN KUTCHAUVER: Bud throughout a show's run, too. A lot of on the front end of a show, to gather a all the bright, shiny things that effe And then, somewhere towards the en son, everybody starts saying, 'You l about the characters and the story, Because, once they have an audience



CINEFEX: In addition to more effects-driven shows, there seem to be more shows that lend themselves to makeup effects — all these forensic shows, like *CSI*, that need bodies on a regular basis.

TOM BURMAN: Oh, yeah, there's a plethora of makeup effects shows now — *CSI*, *Threshold*, *Invasion*. Cable is a big part of it, too. Unlike the network shows, cable shows can push the envelope and be a bit more graphic. Almost everything we make for *Nip/Tuck* winds up being shown — and that's a first for us in television. Once in a while we'll get a little too graphic, and they'll back off. But that doesn't usually happen.

CINEFEX: Are audiences demanding better-quality effects in their television shows?

KEVIN BLANK: I think so. DVD is becoming the preferred way of viewing films, and that has led the audience to demand parity with film in their television shows. So the standards for television are increasing, and many shows have very high production values.

KEVIN KUTCHAUVER: Production values



Battlestar Galactica doesn't come out of the box, but there is a lot of set work, and that's where a lot of the magic happens now — virtual sets, set extensions, set dressing.

KEVIN BLANK: We do a ton of matte paintings on *Alias*, but people don't always notice it. For that reason, I've frequently thought that is the biggest visual effects non-visual effect on television.

CINEFEX: Sydney Bristow does some exotic places!

KEVIN BLANK: And yet, we tend to shoot anywhere to shoot. There's been a real change in the way we've done those types of shots. I mean, if we needed to establish Pasadena, we'd put the camera up in a nodal position, looking down, coming towards camera, and then they'd just pan right to a painting of the Eiffel Tower in that direction. As the show progressed, we'd move against a wall, and then nestle that in. Over time, we've done shots that are more aggressive, nestling actors into CG generated environments.



show, absolutely. We like to be out there on the set, as much as we can. But a lot of effects needs a full-time visual effects supervisor to manage the payroll.

KEVIN BLANK: Some would say that a full-time visual effects supervisor on a production is not needed. On a 'visual effects-heavy' show like *Battlestar Galactica*, *Alias* and *Lost* are more on the fence. They enabled those shows to do many more effects for a lower cost, by using non-traditional management of the time flow.

DAVID CARRIKER: I prefer to have a visual effects supervisor directly involved with the director or producer, because we speak the same language. It's easier for us to figure out where the information is coming from, and the visual effects supervisor can be picky about things that a director or producer might not know what they want, which is a double-edged sword.

KEVIN KUTCHAVER: We've worked with a visual effects supervisor who is really conscientious, like Kevin Blank. He has a good interaction with him, and he helps pull off some really good plates and shots.

CINEFEX: Do any of you vendors have their own elements, or is that always the responsibility of the production?

SAM NICHOLSON: We have a screen stage, which is a traditional production stage, but we have a very advanced system.

ANDREW ORLOFF: We run a screen stage, too. We shoot a lot of our own stuff; and sometimes we just use a background actor in a background that they were hired for some reason. So we take responsibility for our own elements. We think it is important to shoot our own stuff.

CINEFEX: For those of you who are not visual effects supervisors, how do you choose the vendors to work on your show?

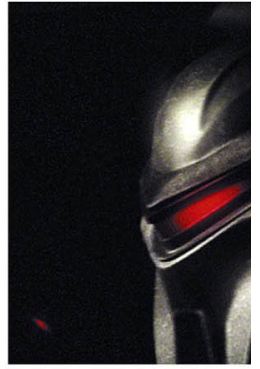
KEVIN BLANK: I have a list of vendors I go to consistently for *Lost* where I go is driven by the specific needs of the show. I have a couple of matte painters I work with. I have a couple of 3D vendors I like to work with. I have a couple of compositors I like to work with. I have a couple of animators I like to work with.



Though not effects' show Investigatic visual effect illustrating a path through digestive sy: slowing down: an ultra-slow coursing 20 of a gun, Zc CG bullet an through a m made up of action plate: shot in mult passes. Zoic 35 to 50 vis week for C:

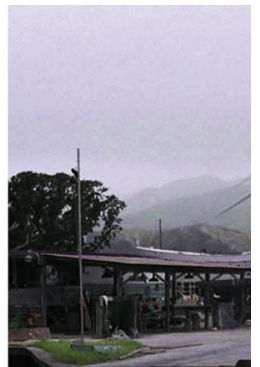
In an episode of E-ring – producer Jerry Bruckheimer's Pentagon-set military drama – U.S. special forces destroy a bridge in Afghanistan to prevent Taliban insurgents from reaching a targeted village. Zoic projected textures from a single frame of a real bridge shot on location onto a 3D bridge. A particle simulation produced the effect of the bridge explosion. Zoic then generated dozens of passes of digital smoke, dust and debris, integrated with practical elements. Zoic maintains a greenscreen stage and shoots its own elements for E-ring and other shows.





TVX3

ARTICLES BY JOE FORDHAM





1 Lost

The pilot show for ABC's hit series *Lost* ostensibly revolved around a disparate group of travelers who survive the crash of Oceanic Airlines' Flight 815 and find themselves on an uncharted tropical beach somewhere in the mid-Pacific. The story — created by J. J. Abrams and Damon Lindelof for Touchstone Television and Bad Robot Productions — quickly expunged any memories of jolly island castaways by plunging viewers into a nightmarish tableaux of bloody corpses, screaming jet engines and the burning hulk of the downed airliner. Huddled around the crash site, survivors attempt to make sense of their situation while encountering strange jungle fauna, a cryptic radio transmission, and a huge but unseen predator that shatters trees and emits a bone-jarring roar. 'Lost' was an understatement.

Abrams shot the two-part pilot episode in March 2004 on the island of Oahu, Hawaii, using as its crash site centerpiece a decommissioned Lockheed L-111 procured from an airplane graveyard in Mojave, California. As writers honed the teleplay, Bad Robot visual effects supervisor Kevin Blank joined the production in Hawaii, collaborating on set with physical effects supervisor Archie Ahuna and technical consultant Tommy Fisher. "J.J. likes to shoot as many real elements in front of camera as possible," stated Blank. "Visual effects added the final eight percent. We did the crash with a real plane, live pyro and wind blowing around — but that opening sequence also contained 125 effects shots."

Blank assigned eight vendors to the pilot's visual effects, adopting a practice he had initiated with *Alias*, Abrams' television spy drama. "I prefer to pair the artist with the shot, using multiple houses. I went to Eden FX, Digital Dimension and Himani Productions as

traditionally established companies, some of our juicier effects. I also worked with some of our newer companies and freelance artists. Eric [Spencer] is a talented matte painter at Blackpool [Visual Effects] in London. Steve Fong is a compositor with [the] company, Seven Crows. And Jonathan [Jonath] of Kaia, in New Mexico, does 3D work. We have Spencer do the 3D, have Eric do the compositing, then send that back to Steve to combine the specific skill sets of individual artists to get a lot of bang for my buck."

Digital and practical effects intermarried to create the crash-site scene. A construction crane anchored on the beach to suspend a large model of the plane above the set, hinged to the fuselage. Bad Robot Productions digital artist Bob Lloyd created the jet engine cowling and the crane. On the right side of the plane, an unwitting survivor wanders into the frame, looking up at the screaming jet engine and is sucked into the engine to explode. Abrams shot the sequence with the engine cowling. Stunt coordinator Grant [Graham] did a ratchet cable pull and hauled a stunt double through the prop. Spencer Levy then created the exploding 3D jet engine inside the cowling. A stunt performer, rotated the body for two frames, then blended a live pyrotechnic effect with the exploding digital engine.

The upraised left wing falls, narrow wings spread, crushing the engine and creating a larger fireball. Physical effects released the wing under its own weight. Archie Ahuna rigged a pyrotechnic blast in a subsequent shot. Kevin Blank and visual effects coordinator Paul Gentry shot additional fireball effects during a second unit shoot, which Steve

A harrowing airliner crash leaves survivors stranded on a mysterious uncharted island in the mid-Pacific, kicking off the ABC series, *Lost*, produced by Touchstone Television. In its first two seasons, the show enthralled audiences by blending intricate character exposition with a multitude of surreal narrative twists – including savage polar bears, a subterranean scientific research station and a powerful destructive force known only as the ‘monster.’ Working from a production base in Hawaii, visual effects supervisor Kevin Blank employed strategic visual effects to embellish environments and maintain the web of suspense, using vendors in Los Angeles, Washington and New Mexico.

For scenes of Oceanic Airlines Flight 815 disintegrating in midair, series co-creator and pilot episode director J.J. Abrams filmed actors in Los Angeles on an aircraft cabin set. The production captured the plane’s tail being ripped away by shooting the cabin with and without a greenscreen backing, cueing a lighting effect to simulate sunlight flooding the cabin as stunt players were yanked around on ratchet pulls. Digital Dimension modeled the aft portion of the cabin in CG, animated the tail section tearing loose, and composited elements with showering debris and sky backgrounds. Camera shake effects completed the illusion.





Oceanic passengers trek into the island, where they discover a wooden clipper ship, the Black Rock, inexplicably beached amid the trees. The production built part of the ship's hull and stern on location in Oahu. Kevin Blank's team completed the vessel using a miniature element derived from an art department study model of the partial set. Blackpool Studios digital matte painting specialist Eric Chauvin photographed the nine-foot-long model against bluescreen, mapped textures to a 3D shape, painted the visible surfaces with weathering effects and added trailing vines to layer the object into the jungle.





In a Season Mr. Eko (Ac Agbaje), a si portion of th an inky vape series' first i the island m filmed reac marker. Edu out the crea using digital the plate, ai gaseous ma emitters an elements. Fi Eko's face, t composers subliminal in adding to th



Twenty-five Universal T opera Battle appeared or launched a i the series, s style, depicti of humans : marauding The produc locations in Columbia, c effects supe and digital v and Vancou armada of : Studios, the provider, me Pegasus, a ! to the fleet, : of the origin ship design.



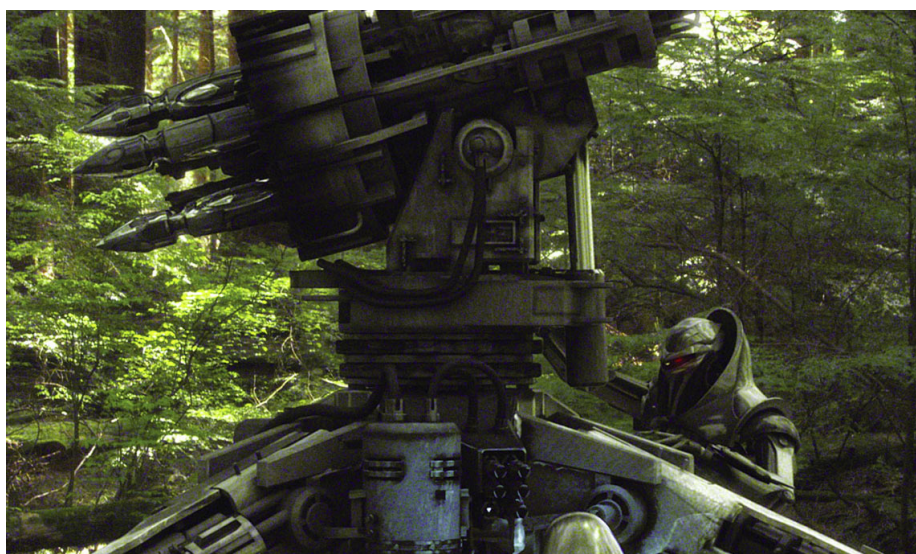
oid form, but the network insisted on Production obliged by book-ending i with scenes featuring humanoid Cyl by hulking mechanical 'centurions oped centurion conceptual art featu series' cyclopean scanning red laser ful upper bodies and claw-like metal f changeable weapons.

Zoic developed Cylon centurions i actors in LightWave, and refined th Maya for Season Two. Hutzel shot hig environment reference for Cylon sc possible on set. Digital artists used sampled imagery from production p reflection maps, and then detailed ro battle damage and grime. Zoic lead c tor Dustin Adair brought centurions frame animation to lend the character a heavy mechanical gait.

The Cylon 'basestar' battleship als renovation to become an aggressive uration of two 5,000-foot-wide, thre



Colonial Cor Adama (Edv addresses h representat fleet in the C The produc set with a gr far end and diodes as tr Depending of the shot, v then utilize: technologie: extensions o the hangar i



metric simulations given a smoky, or one knows there is no air in space,” c Zapara. “Any smoke would instantly sipate. But people associate battle fo lingering in the air, so we took drama ate the ‘fog of war’ with large amour haze, illuminated when explosions nighttime siege on Baghdad.”

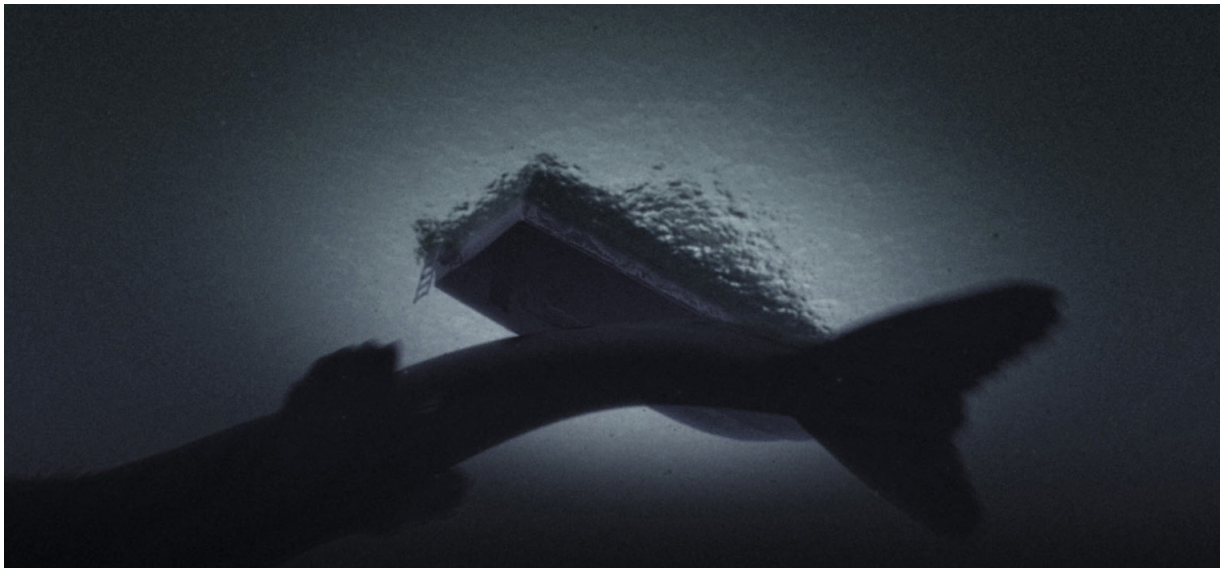
A Season Two episode showcase ferocious space battle during 1 defends itself with a shield of i Zoic generated flak using procedural volumetrics. “We projected pyrotechr particles as sprites,” explained Zap; spawned particle systems of their ow CG smoke and CG ‘microdebris’ — l up to hand-sized chunks of steel an out in random directions.” Highly del lighting effects were needed as Apoll headlong through the firestorm. “L up with a great technique for getting light off the Viper. We rendered a fu sion of the ship that looked like polis reflected battle imagery. We modula a ‘grunge’ pass, which produced ve tions of flak bursting around the sh shot a little extra love, and it becam every other shot in that sequence.”

Heavy visual effects episodes requ notice for complex builds. For a Sea: which Colonials seek to replenish the reserves, Atmosphere pre-built a d environment. “The production gavi designs,” said Andrew Karr. “Our leac Osaki, spent a month and a half proce the asteroid surface and a refinery. W weeks to complete the episode, choi Vipers and Raiders.”

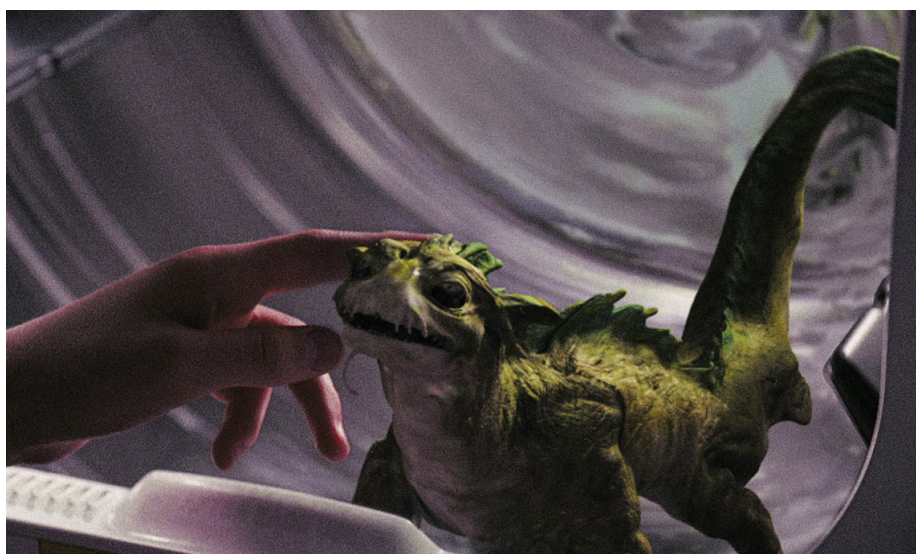
Season Two’s mid-season finale re build to introduce *Galactica*’s long *Pegasus*. Zoic modeler José Perez b in six weeks, using digital kit-bashi paying homage to the design of the “José did a great job of capturing th original ship,” remarked Chris Zapai a little squatter than the new *Galacti* little more dangerous.” The *Pegasu*: trol trench down its nose and extensi



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that blinked and retracted, an opening mechanism and rod-controlled. Another version contained an interior scene in which Nimrod emits an element with light emitting diodes and fiber chasing patterns beneath a silicone articulated 'stunt Nim' had pick-point pieces, including an articulated tail for shots of the creature flitting around.

The Pates filmed Nimrod puppets period at Universal in elevated sets and family bathroom, facilitating unobstructed access. The practical Nim ultimately only a few shots in the pilot, seen in fearfully beneath a toilet. Stunt Nim in Wilmington as a rehearsal and live but puppets were otherwise abandoned. "The velour puppet," asserted Mitch Suskind, "was, on a television schedule, it was built and operated practical creatures continue to grow and evolve."

John Teska initiated the CG Nimrod, using texture maps directly from the puppet, with top and side views and blended to a 3D mesh. Eden FX film tests to prove the feasibility of digital character into brightly lit environment. "We mocked up a toilet paper tube about 1/2 inch in diameter," said John Gross. "We held the tube in place and filmed it moving around, rippling the paper. We painted out the tube and put Nimrod in there. The tests proved that we could show a puppet with the creature, the producers felt confident about doing it all with CG."

For series production, producers redesigned Nimrod with a more subdued color palette, replacing the first design with Ulfarsson's. "It was then a very 'all-hands-on-deck' effort to bring Nim to life. We started out with a few targets. I did as much re-rigging as I could. I had digital artists Sean Jackson and Sean Sullivan create variations." Nimrod took on stature as the series progressed. "When we started, he was about a foot long. Since then, he has grown to be bobcat-sized. That allowed us to make improvements along the way."

The original series concept envisaged Nimrod to grow in size through Season One.



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to the animation. Early on, character animation work to achieve, but we have sur- y's excellent animation rig mously; and we've given

Eden delivered 50 char- days, the series averages ds of two weeks per epi- ten factor into the equa- episode a week before a They then make the final broadcast. We cut a sub- on in the beginning of the leave the audience want- ve our fan base wouldn't

e series' central charac- win at Blackpool Studios ws handled ancillary envi- latte paintings included

In one of m- illustrating c- around the i- shark-fishing a crunchy si- creature. Re- live-action e- boat on loca- River. Eden element dov- and compos- generated o- aquatic pres- / Digital arti- live-action b- CG leviatha- surface, and s- spray and s-

Episode Three begins with an attack in Lake Travis, Texas, where a parasailing woman and the speedboat towing her are hauled into a giant whirlpool. The production shot the scene with a stunt performer doubling as camera operator, shooting air-to-water footage using a handheld consumer-grade camcorder. Eden uprezzed the footage and created digital water displacements using fluid simulations tracked to the lake surface and blended into the production plates. For the final plunge, digital artists generated the churning water surface, plus the speedboat, occupants and towrope in LightWave.



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Dark Lord Rising

ARTICLE BY JOE FORDHAM

Weighing in at two and a half pounds and covering 734 pages in its hardback edition, *Harry Potter and the Goblet of Fire* — the fourth installment in J.K. Rowling's wizard-in-training series — broadened its scope and introduced its teenage protagonist to strange and exotic worlds beyond the confines of Hogwarts School of Witchcraft and Wizardry. Whereas Rowling had previously explored Quidditch tournaments, secret chambers, and dark secrets of the wizard faculty, *Goblet* threw back the curtain to reveal an eccentric Quidditch World Cup, a perilous Triwizard Tournament, and the long- >>>







The 422nd
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the Quiddite
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provided by
Stuart Craig



obliterate. ILM generated Quidditch for the majority of shots, with a hanc as Bulgarian star player Viktor Krum (evski) emerges from a barrel roll — ing the actor on a gimbal-mounted base supplied by John Richardson's broomstick rigs this time without p motion control," said Richardson. "I ing for this technique since the first found that we tended to get a more movement by shooting manually rather than using every move. Most of the rigs th time worked through a real-time wa

Krum's motions appear magnified a stadium-filling wall of flip-over wizard fans. ILM generated the flip-c 30K texture of Krum in flight, projecting of cards animated to cascade in 'Jacob's ladder' wood block toy, and swing and flip at different rates. As responding to their hero Krum, the tale concludes. "This sequence was World Cup," commented Jim Mitchell set up the scene that follows. We've three times before, so there didn't s in watching five more minutes of p was exciting stuff. Mike Newell and wanted to set up the atmosphere with wizards in this unique, huge stadium really no reason to show the game."

Following the match, masked ac mort, known as 'Death Eaters, ties by fire-bombing the tent c effects team generated practical firing Death Eater wand hits and rigged with a propane pipe system that created fires around the field. Tents from fireproof material, allowing for approximately 100 fires. Principal p filmed among the mayhem. "We line to make it look as dangerous as possible," Richardson, "but it was completely

ILM digitally embellished the scene with additional flying fireball elements. The image of the smoldering a digital matte painting, followed with in the night sky — a spectral glowing an aurora borealis in the shape of Vc



London. Visual effects cre-
 ating scenic plates shot
 in Nevis in Scotland. "We
 ing in Scotland," related
 the material that has been
 but we also shot our own
 scenic material has been
 the landscape was green.
 enter feel, and at that time
 m and heather dies off
 and rustic-looking."
 supervisor Simon Stanley-
 shots of Hogwarts, with
 ital matte paintings, and
 in 3D landscapes. Frame-
 ed miniature and scenic
 involving the arrival of for-
 tons Academy of Magic
 or Magical Study.
 and the Beauxbatons arri-
 drawn by a team of seven

Students sta-
 Hogwarts Si-
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rio.' After we looked that mated them to vigorously ng themselves along," Ani- Grillo and Max Solomon animation with dynamic ing and swaying, creating as the contraption swoops o represented a section of characters disembark. strang arrival using min- erts, motion picture tiles of nd digital water simulation ool's square-sailed galleon uction weighed the option s a miniature. "We decided wouldn't hold up in minia- is was supposed to be a 90- nt a miniature would have hold the scale of the water; ll CG." ILM referenced de- nts to fashion the skeletal

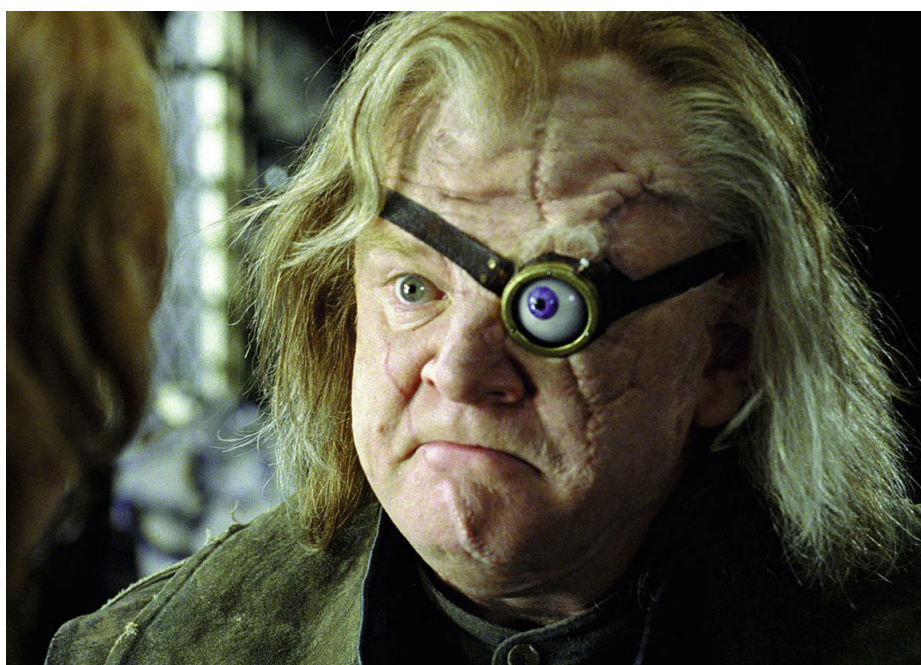
new software engine that coupled wa ulations, allowing synthetic water to from animated cloth. Compositors l physical elements with digital simu ship's sails unfurled.

The student assembly in Hogw. culminates in the unveiling o Fire, a large wooden chalice tl ing blue flame used to select studen compete in the Triwizard Tournam Pictures generated the goblet reveal tulation to transform a rigid golden i silk, and created the goblet's dancin a library of Maya fluid effects blende

The sequence also serves as intro warts' latest Defense Against the D Alastor 'Mad-Eye' Moody (Brendan C gade wizard hunter with a disfigurec ical leg and an all-seeing mechanic Dudman's team built silicone facia



Harry Potter receives a warning from his godfather, Sirius Black (played by Gary Oldman), who appears in the film. The product lighting on the set was lit plastic fire, then shot on a grate and five synchro cameras to create the effect. Gary Oldman's facial markers were used to track his performance, and the rolling wood was used to create the effect of Oldman's eyes.



Hogwarts' Defense Against the Dark Arts teacher, Alastor 'Mad-Eye' Moody (Brendan Gleeson), intimidates students with an all-seeing mechanical eye. Makeup effects and creature supervisor Nick Dudman created Moody's disfigurements using silicone facial prosthetics and a radio-controlled eye — a hollow hemisphere fitted with an internal mechanism that controlled a roving magnetic pupil. For dilating and constricting pupil action, closeups and shots requiring precise eye choreography, Double Negative modeled and animated the wayward eye digitally. In Moody's scene, he traumatizes Ron Weasley (Rupert Grint) by enlarging and levitating

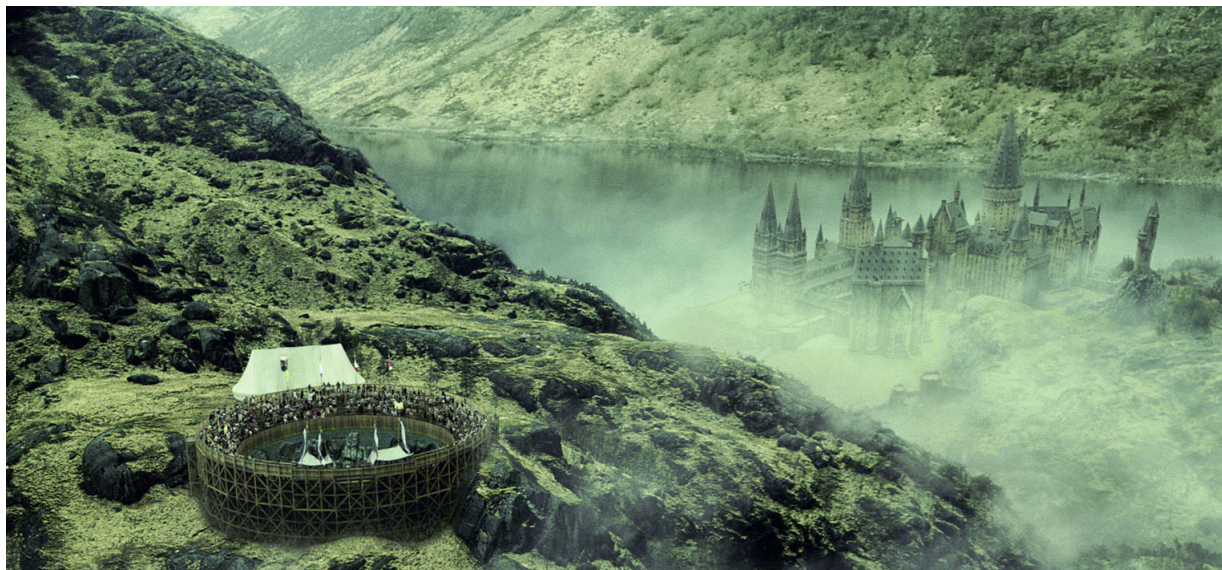
him in the glowing embers of a Hogwarts fireplace. Daniel Radcliffe performed the scene in front of a plastic fireplace, which created practical interactive light. BUF Compagnie visual effects supervisor Stéphane Ceretti then shot passes of a fire burning in the grate, and used an array of five synchronized motion picture cameras to shoot facial capture of Oldman, who delivered lines while lying on a slant board with tracking markers on his face. Artists used animated stereo photogrammetry to triangulate geometry from facial markers and tracked Oldman's performance to a 3D face built out of embers. Fragments of rolling CG wood were composited into the fireplace with physical fire elements, CG sparks and glows, details of Oldman's eyes, and jets of flame that punctuate Sirius' speech as he warns of dangers to come.

For the first Triwizard Tournament task, Harry and three older contestants each duel a dragon

a Horntail maquette, from which sculpted a larger, highly detailed gray scale and a painted version, both supplied by the studio.

Dragons are introduced in an early scene, filmed on location in Black Park, using a 20-foot fire-breathing dragon for distant silhouette shots. "The primary was a lightweight life-size dragon head set with," recalled Nick Dudman. "On the head and eight feet of the neck, we could sculpt the rest very quickly and basic. We used that for wide shots of the dragon in its cage."

Performance systems supervisor mounted the dragon head to a computer-controlled performance system, carried from the Basilisk and Aragog creature scenes. Creature technicians fabricated the dragon's



In an amph
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in bleachers
production :
plates in the
ILM trackec



CG fire. Smoke tends to move slower; we did a lot of work with speed and scale so it spurted everywhere; too slow, and the roiling effect. We then developed it with very sharp detail broken up at

Chase environments included a arena shot as helicopter plate with a CG stadium tracked in side, blended into scenic plates of C matte painting surrounding the Hog The chase from the arena — original a flight down a river and through the to take advantage of Hogwarts' soaring Referencing production previz, the set up motion control shots swooping spires, then used Kodak motion picture into 35mm Nikon still cameras to s coverage. "Because the sequence was frame-for-frame from day one," relay "we also shot static pan-and-tilt angle — matte passes, beauty passes, key ILM would have a full range of element motion control moves."

For closeups of Harry and the Hor onto the roof of Dumbledore's tower, constructed an 18-foot-tall, 1/16-scale and three adjacent towers, then shot moves spiraling around and performing style pull-backs, followed by still-camera production also engaged Plowman C high-resolution laser scans of the 1/1 and the full 1/24-scale miniature durability, from which a digital facsimile o built. "Scanning the Hogwarts miniature to make a much more elaborate character Mitchell. "We could get closer to but could with motion control, and it gave to choreograph Harry's flight and the ing after him. It's the first time we've puter version of Hogwarts for a Pott

ILM's matte painting department thousand images of Hogwarts to record academy in the studio's digital pipeline, Zenviro, and built a high-resolution of Dumbledore's tower with image texture photographic textures of the roof. Horntail shattering roof tiles, Eric W rigging team created hard body drag



...inting at an upcoming
...e surface of Hogwarts'

...eside scenes at Virginia
...boats rigged by the phys-
...ical props propelled by
...bles. Framestore CFC re-
...with Scottish scenic plates
...ironment for wide estab-
...ke, on and around three
...forms. "Stuart Craig de-
...mble England's Brighton
...nell. "They built a partial
...a gazebo up top. We also
...against greenscreen and
...ter tank so Harry and the
...n that into the water. We
...d the lake around them.
...re seen in their entirety

...d the platforms with CG
...ted models of Hogwarts'

*The Dudma
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ge actors," said Mitchell. coating actors on wires, but make people look like they right movements of hair re really underwater."

ater shots, the physical custom bluescreen tank ad to bear in mind that the o be underwater without oparatus," remarked John uilt was 60 feet square and million gallons of water, through filters every hour water purification system the bacteria and enabled nimized to half a part per ation. Sand filters helped

all of the tank with a triple- ch-thick viewing window,

tat fed with air and an audio/video li actors to rest and receive direction f director Peter MacDonald without su takes. "We tried to avoid Daniel Rad get in and out of the water repeated Burke. "Every time he went back unde with bubbles, particularly in his hai in the story, he was supposed to be an hour with no air. We spent a lot o for bubbles to clear."

Harry achieves his subaquatic abil ing 'gillyweed,' a magical slimy plan gills, webbed feet and hands. To sin formation, Nick Dudman's team fitt foam latex gill prosthetics, which ope the actor turned his head, revealing, from pink iridescent fabric. For flip team created functional appendage into Radcliffe's legs. Makeup artists markers to Radcliffe's ankles to ena CFC to digitally remove the actor's l



The second takes place in Lake, where contestants viewing platform filmed established principal setting in Lo then replaced with Scottish shots of actors employed a which stood tank at Lea CFC added



vertebrates with the upper torso of a Framestore CFC developed a CG gr Dudman maquette, using custom subsurface scattering and translucency rig to create a squid-like ray. "Each grindylow had an overall 'squid-like' related Webber. "We controlled each dynamics and muscle systems to match. It was a rigging challenge because it had a skeleton, but the bottom half couldn't stretch." Framestore CFC's in-house team, 'Choreographer,' was utilized to create flocking motion as dozens of grindylows. "We couldn't use a crowd system because we didn't have control over each creature; and so we used each character in Choreographer. We layered them into layers to wrap them around a composite, then rendered them most

For the third and final task, creating the Triwizard trophy inside a hedge, the production stretched for miles into a misty sequence reconceived the episode dealing with the book, eliminating a labyrinth of hedges. "We discussed having Harry meet the spirit creatures in the book," remarked J.K. Rowling since we had to condense that, we created the maze itself into a creature. That sequence was more psychological."

The production first constructed the maze as a partial set on stage at Pinewood. The set included 25-foot-tall reconfigurable walls and a 35-foot corridor of hedges capable of moving in and out. "Both sides of the wall could ripple in and out," stated John Richardson. "We treated the section as a large steel structure with the walls covered with several depths of chicken wire and plastic bushes pushed in by hand. It was designed to stretch and compress as it moved by being controlled through a Kuper system. We had a model of the maze with different shafts that the walls spring in or out. If we ran a wave down the sides of our model maze, the walls would move in a wave. It helped bring a bit of life to the scene, giving the actors something to react to."

As the sequence took shape editing



vertebrates with the upper torso of a Framestore CFC developed a CG gr
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For the third and final task, cor
the Triwizard trophy inside a h
stretches for miles into a mist
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scape.” The graveyard is introduced of the film — a 2,000-frame shot that tombstones, following a 19-foot-long down manor house on a hill. MPC a visor Ferran Domenech oversaw per snake as a digital character that slit teractive CG grass, with skeletal and Syflex cloth simulation skin, snake-s placements and multi-layered refle enhanced the environment with a 3 an angel with a scythe, allowing a c revealed a 2½D version of the mano

In graveyard scenes with Cedric : ble Negative collaborated with M scans of the set to extend the en ble Negative also rebuilt the scythe of Death’ statue in 3D for shots in w life, trapping Harry in its arms. The pi Daniel Radcliffe on wires, suspended less and wingless statue. Double Ne digital statue arms, scythe and wing





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